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Examination	Requested
Title of Invention	Reinforcement for construction and manufacturing process and apparatus

Abstract

The invention relates to the reinforcement for construction, for getting from building, the public works and repair, and the concrete mortar reinforcing material at the reinforcement construction the manufacturing method thereof and apparatus.

Generally, as been well-known about building or the public works (it hereinafter says to be construction), the reinforced paper branch is formed into the steel reinforcement and the specific form of the wall luminaire by the mold is comprised of this reinforcement outer side and the concrete mortar is cured with filling and by removing the mold after cure it reinforces the supporting force of the nurture-produced mortar and the reinforcing member in which the wall luminaire is comprised and which is made of the steel reinforcement obtains the strong wall.

Pigment etc. as to the invention, dip the fiber for the heart wood into the appropriate amount admixed dipping bath. It selectively adds with the slub (Roving) one after, and hardener while processing the heart wood in which resin is dipped with the sizing (Sizing), it ossifies and resin layer are again formed and it coats with the garnet (30) and the bar of the reinforcement for construction is comprised of the process of cutting in the constant size after hardening by the preheat heating and pulling, the intensity and elasticity recoverability are excellent and it has to be thick. And it is the intended invention to increase especially, the sliding prevention effect by the garnet and provide the strong member with the robustness of building to the water or the salinity.

Representative Drawing(s)

Fig. 1

Keyword(s)

Slub (Roving) sizing (Sizing)

Description

※ Brief Explanation of the Drawing(s)

Figure 1 is a front view of the whole showing the manufacturing device of the present invention.

Figure 2 is a block diagram of the invention manufacturing method

Figure 3 is an enlarged sectional view of the main part garnet coating process of the invention.

Figure 4 is a perspective view of the main part reinforcing material of the invention.

Figure 5 is an enlarged sectional view of fig. 4.

The description of reference numerals showing the main elements in drawings.

10: heart wood 11: guide roll 12: slub guide.

13: clothing resin 14: dipping bath 15: guide.

16: sizing guide 17: hopper 20: coating box.

21: application tube 22: jet blade 30: garnet.

A: roving B: resin-impregnation process C: the sizing and preheat heating process.

D: baking step E: garnet coating process F: drying heater process.

G: pulling sawing process M: motor.

※ Details of the Invention

※ Purpose of the Invention

※ The Technical Field to which the Invention belongs and the Prior Art in that Field

The invention relates to the repair of building and public works or building, and the reinforcement for construction, for getting from the concrete mortar reinforcing material at the reinforcement construction the manufacturing method thereof and apparatus.

Generally, it reinforces the supporting force of the nurture-produced mortar and the reinforcing member in which building and public works or repair, and the wall luminaire as been well-known about the reinforcement construction (it hereinafter says to be construction), the reinforced paper branch is formed into the steel reinforcement and the specific form of the wall luminaire by the mold is comprised of this reinforcement outer side and it cures and the concrete mortar the mold after cure is removed with filling are comprised and which is made of the steel reinforcement obtains the strong wall.

There can be snatch and rib of anti-skid while being divided, kind and dimension · material etc. are prescribed in the KSD 3504 (the bar iron for the ferroconcrete) and as long as it separately does not request, moreover, the length of the steel reinforcement is produced to 3.5~10.0 m as the reinforcing steel round bar and notched bars the steel reinforcement (鐵筋, steel reinforcement) of the reinforcing member is used in the ferroconcrete. When the adhesive force with the concrete is great and the cracking is drawn in the concrete, reason for this exhibits the feature in which the crack width becomes smaller.

It is the disadvantage that the rust is generated and it causes easily the strength degradation of the steel reinforcement due to the rust and rusting is drastically increased in the place where there are many water or the moisture and salinity and the installation point shortens the lifetime of building the valence radical and the disadvantage has this steel reinforcement.

Moreover, since the resources procurement of the national is unable to be accomplished it is the high price and the weight is heavy and the steel reinforcement deciding on the iron to the supervision has the problem of being many on transportation and custody.

In order to improve this kind of problem, the carbon fiber which can be mass produced to the cheap production cost standing well in the water and salinity in 1997 year KR25928 A and the reinforcing material consisting of resin are known.

It laminates the carbon fiber layer in the mold and it comprises the reinforcement plate with the Vacuum forming by the heating pressurization, it heightens the robustness on the other hands, the first to invent provides the reinforcing material standing well in the water, the moisture and salinity and is moreover cheap.

In the above case, even though it is used with the reinforcement plate as the heart wood which molds bar, is planted within the concrete mortar layer, it has.

The heart wood at this invention has the disadvantage of the vice, which the heart wood is slipped on the mortar bed with if laminating the carbon fiber thread in the multiple fold and being shaped with the mold the outer circumference of the heart wood comprised of especially, the fiber yarn with the problem that it is a difficult the manufacture is slick and component receives the power and comes off that is, slipping being generated and adamantly attaching the mortar.

※ The Technical Challenges of the Invention

It dips into the dipping bath in which the resin in which pigment etc. are mixed with proper amount with being worked out in order to improve the conventional overall problems as described above selectively adds especially, the fiber for the heart wood with the slub (Roving) one after, and hardener is taken charge of at the invention. While processing the heart wood in which resin is dipped with the sizing (Sizing), it ossifies and the resin layer is again formed and it coats with the garnet (30) and the bar of the reinforcement for construction is comprised of the process of cutting in the constant size after hardening by the preheat heating and pulling, the intensity and elasticity recoverability are excellent and it has to be thick. And it is the intended invention to provide the strong member with the robustness of building to the water or the salinity by using especially, the sliding prevention effect by the garnet as for construction reinforcing rod ash on the increase.

※ Structure & Operation of the Invention

With reference to the invention attached view for achieving purpose, the configuration is described in detail as follows.

Figure 1 shows fig. 2 is the block diagram of the invention manufacturing method it is the front view of the whole showing the manufacturing device of the present invention.

As shown in the figure, with the sizing and the preheat heating process (C), which removes the bubble generated in the thickness and resin-impregnation process (B) of the clothing resin (13) it collects the clothing resin (13) more than the need burying the heart wood (10) in which resin is dipped in the sizing guide (16) of the nozzle form in the heart wood (10) to the large amount with removal it passes the singleness or the guide (15) which arranges the polyester resin in which the pigment for hardener and coloring etc. is mixed with proper amount, and the roving (A) and the resin-impregnation process (B), dipping the clothing resin (13) into the Jo BangDoen heart wood (10) in the dipping bath (14) in which the vinylester resin or the clothing resin (13) consisting of the epoxy resin is filled with and the heart wood (10) in which resin is dipped to the slub guide (12) which is the guide roll (11) and porous plate it roves it combines the heart wood (10) consisting of the glass fiber yarn of the different strand, and the aramid fiber yarn or the carbon fiber thread and the baking step (D) which desires it again controls the clothing resin (13) amount burying in the heart wood (1) and which ossify to fit because of being thick and completely remove the residual bubble expanded in the second sizing and preheat heating process (C) and draw in order to be good While passing the draw roll (18) and cutter (19) after being again dried with the drying heater process (F) if the garnet (30) is adhered by the garnet coating process (E), which sprays the garnet (30) which the coating box (20) is supplied to the jet blade (22) rotating at the motor (M) in the coating box (20) if it leads to the application tube (21) formed with the guideline guide tube and it coats the heart wood (10) outer circumference with the watery solution which is supplied to the hopper (17) of the application tube (21) top and it transfers and coats the garnet (30) on the resin layer coated onto the heart wood (10) outer circumference and garnet coating process (E) to the heart wood (10) outer circumference and the unevenness is formed, as shown in the heart wood (10) hardened with above statement is the enlarged sectional view of the invention main part garnet coating process of fig. 3, for construction bar is completed by the pulling sawing process (G) cut with the desired length with pulling.

The polyester resin, and the vinylester resin or the clothing resin (13) consisting of the epoxy resin the heart wood (10) in which fig. 4 is the perspective view of the main part reinforcing material of the present invention and in which fig. 5 shows the enlarged sectional view of fig. 4 and which is manufactured by above statement are coated onto the singleness or the bar plaited threads with the glass fiber of the different strand, and the aramid fibre or the carbon fiber and the garnet (30) is together comprised in this clothing resin layer with impregnation and the intensity is big with the robustness and the elasticity recoverability is excellent. And there is no crack phenomenon. While the production process being automatized with the feature which it uniformly can manufacture with the size which desires to be thick and cutting down the manufacturing cost, slipping is prevented in especially, for construction bar and the strong supporting force can be gotten.

If described in more detail, it is the functional effect of the present invention like the or more the same like next.

Figure 1 is fig. 2 the block diagram of the invention manufacturing method and fig. 3 is the enlarged sectional view of the main part garnet coating process of the present invention it is the front view of the whole showing the manufacturing device of the present invention. Fig. 4 the perspective view of the main part reinforcing material of the present invention fig. 5 shows the enlarged sectional view of fig. 4 and it passes the heart wood (10) in which the clothing resin (13) buries in the preheat heating box over 1 through and while passing through the sizing guide (16) of the reduced nozzle sizing hole, it is removed and it collects the clothing resin (13) of the excess of quantity burying in the heart wood (10) resin, the sizing of the present invention and the preheat heating process (C) shown in above statement are dropped and recovered to (18). And it becomes through 1,2 difference with sizing treatment before being preheated with the heating heater of the heating box.

At this time, it organized over 1 and the preheat heating box removed resin and bubble of the excess of quantity burying in the heart wood (1) with the first preheat heating box to the first and the resin stiffening well induced

as as possible. And while again passing through the second preheat or the third preheat heating box, the sizing guide got rid of the bubble which removed was expanded in the first preheat heating box. It was again preheating processed and the crack was prevented in the cure process which was post-processing.

In the above case, according to the preheat heating box is need over 1, it can comprise with the some extent thing.

And while organizing over 1 and passing through the first hardening and the second hardening, the heating heater the even in this case is organized in the hardening box in which the baking step (D) is made like the preheat heating box and as to the inlet side, the sizing guide (16) is adhered and finally the content of the clothing resin (13) is controlled. It heating is hardened so that while completely removing the bubble which removed is expanded in the preheat heating box, it becomes with heating hardening process and tension works, it cut.

If it leads to the application tube (21) again formed with the heart wood (10) hardened by the or more as the guideline guide tube and the watery solution which is supplied to the hopper (17) of the application tube (21) top is coated the heart wood (10) outer circumference with and it transfers, the garnet (30) which the coating box (20) is supplied to the jet blade (22) rotating at the motor (M) in the coating box (20) is sprayed and the garnet (30) is coated on the resin layer coated onto the heart wood (10) outer circumference.

While passing the draw roll (18) of pulling and sawing process (G) and cutter (19) after being again dried with the drying heater process (F) if the garnet (30) is adhered by the garnet coating process (E) described in the above to the heart wood (10) outer circumference and the unevenness is formed, it is cut with the desired length with pulling and for construction bar is completed.

It is preferable that the thing which maintains with about 25℃ and coated the heart wood (10) in the temperature of the clothing resin (13) of the invention is desirable. It maintains speed to the extent which follows because of being thick and the pays with about 50㎝ / extent has difference but.

And since the heart wood (10) in which clothing resin (13) having the color when needing the use location of the heart wood etc. to the object of that is, that is, the danger notation or in, the outer surface etc. after roving and making the fiber for the heart wood consisting of the glass fiber yarn, and the aramid fiber yarn or the carbon fiber thread into the desired heart wood (10) which has to be thick, it is necessary to have the color according to use, it supplies the polyester resin in which pigment etc. are mixed to the appropriate amount it selectively adds, and the vinylester resin or the clothing resin (13) consisting of the epoxy resin with impregnation or the hopper (17) bury has the chromatics the convenience and use can be inscribed.

It is the invention which into one body dips the heart wood with the garnet with the advantage of providing for construction bar having pulling along with the garnet coating, and the high definition the quality control is facilitated because of cutting and producing, the bubble is not in the coated copper resin layer at all and the intensity is big and the elasticity recoverability is excellent, and there can be no crack phenomenon, and it can manufacture with the size which desires to be thick, and the production process can be automatized and the manufacturing cost can be cut down. The invention repeats the sizing, preheat, the sizing and hardening heat treatment in the sizing, the preheat heating process and baking step and the heart wood prevents the slim phenomenon in the mortar bed since the garnet is adamantly fixed and simply improves the conventional vice.

※ Effects of the Invention

The present invention is to provide the reinforcing material of the resinous material having strong the anti-skid at the robustness and mortar bed and moisture and salinity and my about rigidity with the simple manufacture of for construction bar and is moreover cheap, and in the heart wood by the garnet having the impregnation in the polyester resin in which the color is added according to use it makes the fiber yarn for the heart wood consisting of especially, the glass fiber yarn, and the aramid fiber yarn or the carbon fiber thread the desired heart wood

(10) which has it is thick it roves or the clothing resin (13) consisting of the epoxy resin and heating and the adhesive force strong since the clothing resin (13) is again concealed and it coats the garnet on the heart wood and the garnet of concavo-convex is comprised in the heart wood (10) into one body is the mortar bed, it is the invention which simply improves the disadvantage of becoming with slim and can obtain the reinforcement for construction which is effective for building and repair of the place where there are many water or the moisture and is particularly cheap.

Scope of Claims

Claim 1 :

The singleness or the reinforcement for construction manufacturing method combining and is made with the rove roving (A), the resin-impregnation process (B) dipped in the dipping bath (14), the sizing and the preheat heating process (C) which removes the bubble generated in the thickness and resin-impregnation process (B) of the clothing resin (13) while collecting the clothing resin (13) more than need in the heart wood (10), the baking step (D), the garnet coating process (E) spraying the watery solution of the heart wood (10) outer circumference with again and sprays the garnet (30) on the heart wood (10) hardened with above statement to the jet blade (22) rotating in the coating box (20) and coats the garnet (30) on the resin layer coated onto the heart wood (10) outer circumference, and the heart wood, the heart wood (10) consisting of glass fiber yarn, and the aramid fiber or the carbon fiber thread. As to the resin-impregnation process (B) dipped in the, the clothing resin (13) in which the pigment for hardener and coloring is mixed is filled with. As to the, resin is dipped with removal. The baking step (D) desires the heart wood (1) and which ossify to fit because of being thick and draw the residual bubble with removal in order to be good. As to the heart wood,, the garnet (30) is adhered by the garnet coating process (E) to the heart wood (10) outer circumference and forming the unevenness again, the pulling sawing process (G) along with the drying heating process (F).

Claim 2 :

The reinforcement for construction in which the clothing resin (13) consisting of the polyester resin or the epoxy resin in the heart wood plaited threads to the glass fiber yarn or the carbon fiber thread is coated onto and in which the garnet (30) is comprised in this clothing resin layer with impregnation and which is comprised slipping with the robustness.

Claim 3 :

The reinforcement for construction manufacturing device comprising the sizing and preheat heating process (C), and the baking step (D) removing the bubble which is generated while combining the heart wood (10) consisting of the carbon fiber and collecting the rove roving (A), and the resin-impregnation process (B), which dips into the clothing resin (13) in which the pigment for hardener and coloring is mixed and clothing resin (13) with removal, and is again the garnet coating process (E), jetting the garnet (30) leading to the application tube (21) formed with the heart wood (10) hardened with above statement as the guideline guide tube and coats the heart wood (10) outer circumference with the watery solution which is supplied to the hopper (17) of the application tube (21) top and transfers and is supplied to the jet blade (22) within the coating box (20) and coats the garnet (30) on the resin layer coated onto the heart wood (10) outer circumference and the heart wood in which the garnet (30) is dipped into the heart wood (10) outer circumference with the garnet coating process (E) made with the drying heating process (F) with the pulling sawing process (G).

Drawings

Fig. 1

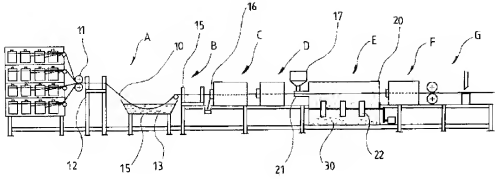

Fig. 2

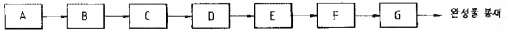

Fig. 3

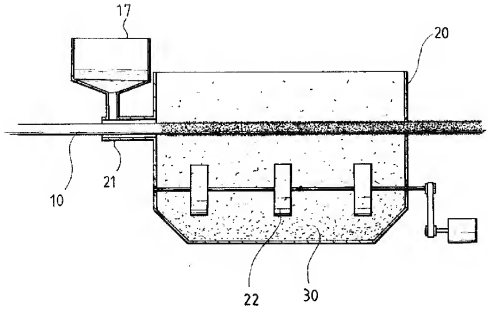

Fig. 4

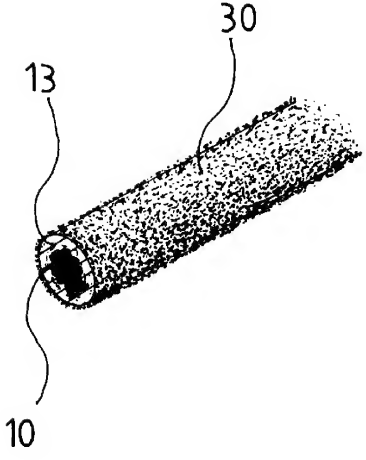

Fig. 5